Studies on California Ants. 8. A New Species of *Cardiocondyla* (Hymenoptera: Formicidae)

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Abstract: A new species of introduced ant, *C. ectopia*, is described and figured, based on material from Orange and Los Angeles counties. All three castes are included and the species is compared to the other four species known to occur in the United States.

Cardiocondyla is an Old World genus of approximately 30 species, about half a dozen of which are regularly transported by commerce into new areas. Four species have been introduced into the eastern United States (Smith, 1944); all seem to be firmly established in Florida. No species has previously been reported from California. This seems surprising since the three most commonly transported species are common in the Pacific region.

The first California specimens to come to my attention were collected by R. J. Hamton at his home in Long Beach, Los Angeles Co., in 1967. During the following year, specimens were collected by K. C. Stephens in Downey and Artesia, L. A. Co. Specimens from Tustin, Orange Co., were collected in 1970 by A Mintzer, and the author found the species in his yard at Seal Beach, Orange Co., in 1972.

I have been unable to associate this species with any previously described name. In order to discuss this species in the following paper, I am describing the ant as new. Hopefully the correct name, if the species is previously described, can be determined at a later date.

Cardiocondyla ectopia Snelling, n. sp.

DIAGNOSIS

Worker (among species in North America) with shallow but distinctly impressed metanotal suture; antennal scape failing to attain occipital margin by about apical breadth; propodeum with a pair of short, triangular denticles; promesonotum slight shiny, irregularly roughened and with shallow, obscure punctures; petiolar node, from above, slightly longer than wide; anterior border of postpetiolar node slightly concave. *Female* and *male*: see DISCUSSION (Figs. 1–5).

WORKER *Measurements* (Figs. 1, 2). HL 0.55–0.60 (0.60); HW 0.43–0.48 (0.47); SL 0.40–0.44 (0.44); WL 0.65–0.71 (0.68); PW 0.30–0.33 (0.33) mm.

Head distinctly longer than wide, CI 76–81 (79), longer than scape, SI 90–97 (92); in frontal view, sides nearly straight, a little convergent above; occipital margin straight, corners fully rounded. Median lobe of clypeus high, weakly carinate laterally, apical margin shallowly concave. Scape short of occipital margin by about its maximum thickness, less than length of second antennomere. Eye large, with 11–14 facets in greatest

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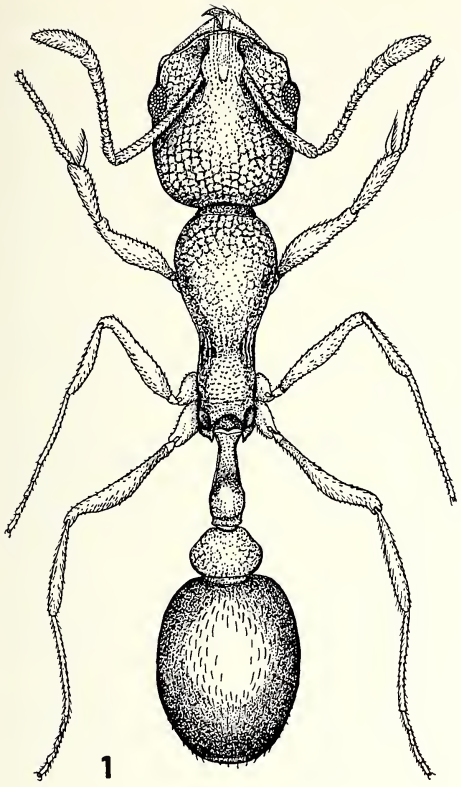

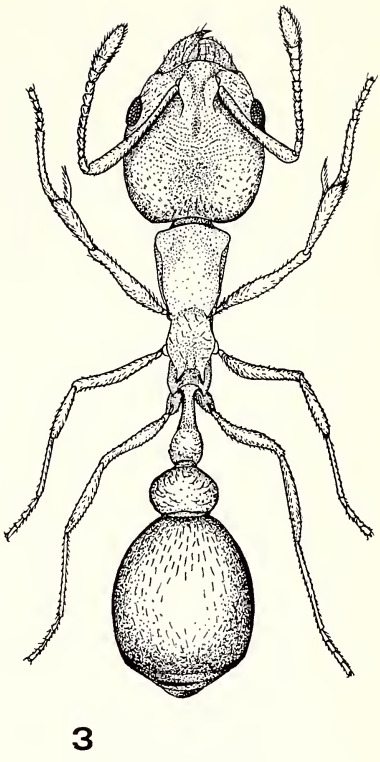

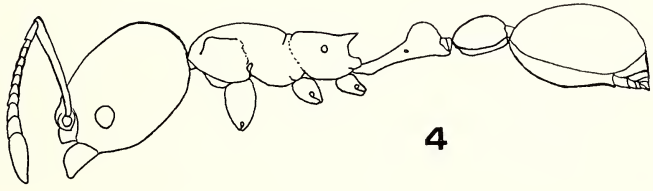

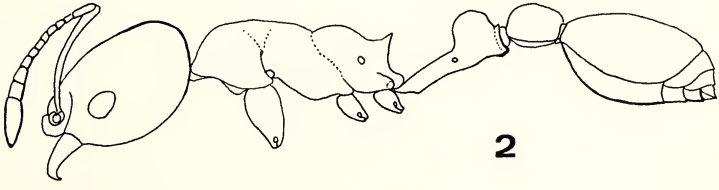

Figs. 1–4. *Cardiocondyla ectopia.* 1. Worker, dorsal view; 2. Same, lateral view; 3. Male, dorsal view; 4. Same, lateral view. Figures by Ruth Ann DeNicola.

diameter, removed from mandibular insertion by 0.58–0.80 (0.80) times its greatest diameter. Mandible quinquedentate.

Thorax slender, PW 0.44–0.49 (0.49) × WL. Pronotum, from above, with rounded humeri. In profile, metanotal suture broadly, shallowly impressed. Propodeum spinose, spines stout, about as long as basal width; distance between apices of spines about three times their length.

Anterior peduncle of petiole slightly longer than height of node; node in profile distinctly longer than high; node, from above, a little longer than wide; peduncle with anteroventral tooth. Node of postpetiole about twice wider than that of petiole; from above, 1.24–1.50 times wider than long, lateral margins strongly convex; anterior margin straight or slightly concave.

Integument. Front of head slightly shiny, finely reticulate and with obscure fine punctures; median line obscure. Supraclypeal area polished, shiny. Median lobe of clypeus slightly shiny, with several irregular, fine longitudinal rugulae. Sides and venter of head shiny and sparsely punctate, reticulae faint.

Thoracic dorsum a little shinier than front of head, faintly reticulate and with shallow punctures. Pronotal side shiny, with sparse, fine punctures. Sides of mesopleura and propodeum moderately shiny; closely, finely striatopunctate. Petiolar node moderately shiny, finely sparsely punctate; anterior peduncle dull, closely punctate. Node of postpetiole moderately shiny, with sparse, obscure, fine punctures. First gastric tergite shiny, with sparse, fine piligerous punctures.

Vestiture. Pubescence everywhere fine, appressed, as usual in genus. Clypeal margin with three long, erect hairs; mandibles with a few long, decumbent hairs; apical gastric segments with a few long, decumbent hairs.

Color. Head brownish ferruginous, lighter anteriorly; thorax, petiole and postpetiole light ferruginous to yellowish; gaster blackish; antenna and legs light ferruginous to yellowish.

FEMALE *Measurements* (Fig. 5). HL 0.59–0.63; HW 0.47–0.50; SL 0.43–0.44; WL 0.84–0.89; PW 0.40–0.42; Wing 2.00–2.07 mm.

Head shape similar to that of worker, CI 78–82. Scape short of occiput by about its greatest thickness, less than length of second antennomere; proportionately shorter than that of worker, SI 88–91. Eye large, removed from base of mandible by 0.58–0.67 times its greatest length. Lateral ocelli about ⅓ smaller than median ocellus, separated by about five times their diameters. Clypeus and mandible as in worker.

Thorax slender, WL 0.47–0.49 times WL. Pronotal humeri weakly angulate. Basal face of propodeum about as long as posterior face; spines triangular, length slightly less than greatest width, distance between apices about three times their length.

Petiole and postpetiole as in worker.

Integument. Head as in worker. Pronotal humeri, mesoscutum and scutellum slightly shiny, coarsely reticulopunctate. Side of pronotum, pleurae and side of propodeum shinier than dorsum, finely longitudinally striatopunctate. Basal face of propodeum closely, finely punctate, posterior face shiny, finely transversely striate. Petiole and postpetiole as in worker. First gastric tergite similar to that of worker, but punctures relatively coarser.

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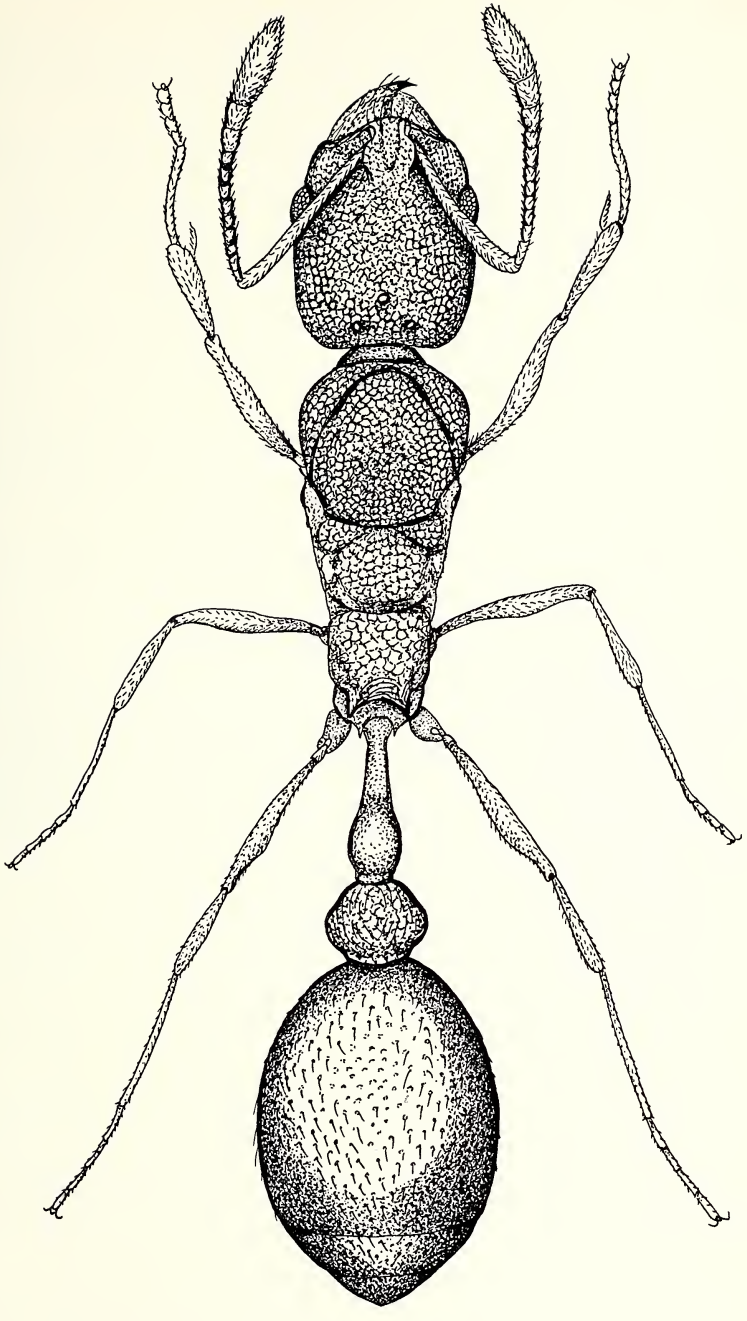
FIG. 5. *Cardiocondyla ectopia.* Female, dorsal view. Figure by Ruth Ann DeNicola.



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Vestiture. As in worker.

Color. Light brownish ferruginous, thorax, petiole, postpetiole, and appendages lighter; gaster blackish. Wings whitish, veins and stigma pale yellowish.

MALE *Measurements* (Figs. 3, 4). HL 0.51–0.54 (0.53); HW 0.48–0.50 (0.48); SL 0.38–0.39 (0.38); WL 0.61–0.63 (0.63); PW 0.30–0.31 (0.30).

Head slightly longer than broad, CI 91–93 (91), distinctly longer than scape, SI 78–79 (79); in frontal view, sides of head and occipital margin nearly straight, occipital corners broadly rounded. Median lobe of clypeus short, weakly carinate at sides, margin slightly concave. Antenna 12-segmented, apical club one-segmented; scape short of occiput by a little less (5:6) than its greatest thickness, about length of second antennomere. Eye small, separated from mandibular insertion by 0.88–1.00 (1.00) times its greatest diameter. Ocelli absent. Mandible quinquedentate, apical tooth massive, preapical tooth larger than basal teeth.

Thorax slender, PW 0.48–0.50 (0.48) times WL, broadest at humeri. Humeri rightangular; pronotum and mesonotum abruptly declivitous laterally. Metanotal suture impressed. Basal face of propodeum distinctly longer than posterior; spines short, triangular, about as long as greatest width, apices separated by slightly more than twice length.

Node of petiole, from above, a little broader than long; in profile, longer than high; peduncle with anteroventral tooth. Node of postpetiole about twice wider than that of petiole, 1.4–1.5 times wider than long, sides strongly convex from above.

Integument. Head shiny, smooth to slightly roughened between sparse, fine, shallow, piligerous punctures; clypeus moderately shiny, with obscure median carinula; sides and venter duller, integument more roughened. Promesonotum shiny, with sparse, fine punctures; side of propodeum smooth and shiny, with sparse fine punctures; pleurae similar, but weakly striatopunctate on lower half. Basal face of propodeum shiny, with sparse, fine punctures; side similar, but obscurely striatopunctate below. Nodes of petiole and postpetiole moderately shiny, with sparse, fine punctures. First tergite smooth and shiny between scattered fine, piligerous punctures.

Vestiture. As described for worker.

Color. Head, thorax, petiole, and postpetiole pale yellowish; clypeus, mandible, thoracic sutures, and pleurae more reddish; gaster light brownish; vertex with obscure pale brownish spot; appendages pale reddish yellow.

Holotype worker, *allotype* male; 17 female, two male and 282 worker paratypes: Seal Beach, 25′, Orange Co., Calif., 17–24 July 1972 (R. R. Snelling, No. 72–9), in Natural History Museum of Los Angeles County, except one female and two worker paratypes in each of the following: American Museum of Natural History, Museum of Comparative Zoology, and United States National Museum.

The specific name is from Greek, *ektopios*, strange or out of place, alluding to the alien origin of this species.

DISTRIBUTION

Although certainly of Old World origin, this species is presently known only from southern California. In addition to material from the type locality, specimens from the following localities have been studied: Long Beach, Los Angeles Co., various dates (R. J. Hamton; LACM, RJH); Downey, Los Angeles Co., 6 June 1968 (K. C. Stephens;

LACM); Artesia, Los Angeles Co., 22 Aug. 1968 (K. C. Stephens; LACM); Tustin, Orange Co., 6 June 1970 (A. Mintzer; LACM).

DISCUSSION

The worker of *C. ectopia* cannot be run out in the key by Smith (1944) since it fails to agree fully with either alternative of the first couplet. In that of Creighton (1950) it will go to *C. emeryi* Forel. Workers differ from those of *C. emeryi* by the broader head, longer oculomandibular distance, concave anterior clypeal margin, striatopunctate pleurae, broader propodeal spines, and less compressed petiolar node. From *C. nuda* (Mayr), *C. ectopia* is readily separable by the shorter oculomalar distance, rounded humeri, striatopunctate pleurae, and impressed metanotal suture. In *C. venustula* Wheeler and Mann, the clypeus is more massive, the pleurae punctate only, the propodeal spines are reduced to minute tubercules and the antennal scape fails to reach the occipital margin by less than its greatest thickness. In *C. wroughtoni* Forel, the node of the petiole is broader, the anterior margin of the postpetiole is distinctly concave, the pronotal humeri are subangular and the propodeal spines are longer.

Males in this genus are very poorly known and the few descriptions are meaningless, especially those of the ergatoid males. These usually have been compared to the workers. Normal, winged males are produced by *C. emeryi*. This same species also has modified ergatoid males in which the antennae are 11-segmented, the mandible is unusually long and slender, without a dentate cutting margin, the anterior margin of the clypeus is deeply emarginate and with lateral angulations, and the mesonotum has a transverse gibbosity. An ergatoid male similar to that of *C. ectopia* is produced by *C. nuda* but the description of that form by Forel (1904) is too general to be useful. No males of *C. venustula* or *C. wroughtoni* have been available, nor have they been described.

The female of *C. venustula* has the propodeal spines reduced to denticles, the nodes of petiole and postpetiole are sharply reticulopunctate, and the sides of the thorax are longitudinally rugulose. Those of *C. wroughtoni* and *C. emeryi* also have rather coarsely and closely punctate petiolar and postpetiolar nodes, the anterior margin of the postpetiole is concave in dorsal view, the petiolar spines are about thrice longer than wide and the sides of the pronotum are uniformly contiguously punctate. The female of *C. ectopia* is most similar to that of *C. nuda*, but the sides of the pronotum are shinier, with irregularly spaced punctures and longitudinal rugulae, rather than uniformly closely punctate. In *C. nuda* the piligerous punctures of the first tergite are very fine, hardly exceeding the diameter of the hairs arising from them. In that species, too, the oculomandibular distance is about half the maximum eye length, a little longer in *C. ectopia*.

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